Biological Evaluation for Rare Plant Species

2019 Snowy Range Ski Area Environmental Assessment

Medicine Bow - Routt National Forests and Thunder Basin National Grassland
Laramie Ranger District
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Section I – Proposed Action and Alternatives

Proposed Action

1) Replace top terminal at Chute Lift
    - New overhead motor room
    - Some construction/ soil disturbance at the top of the lift
2) Chute lift modified from double to triple lift (after top terminal change)
    - No expected soil disturbance
3) Patrol/customer structure construction at top of Chute (after other changes)
    - Once the existing Chute motor room is gone, which would include removal of all machinery, the bull wheel, and attached supporting tower bracketing, we would be left with an existing foundation in this location. It is far enough back from the new unloading area so as to present no particular problem, and could be used to construct a new building to serve this purpose. This would need no power runs and no disturbances to construct.
4) Add yurt and vault toilet at base of Sundance
    - The Yurt will be built on a deck structure that is elevated above the terrain by way of posts. This limits the disturbance and impact of the building to just the footprint of the posts, and allows it to be well above grade so that in the winter, it is at or above snow levels. This will also allow us to have a small deck attached to it.
    - The Yurt would likely be a 30’ diameter version, which is about 700 Sq Feet and can accommodate around 60 people. The Deck size would need to accommodate the Yurt as well as any extra outside spaces we wanted, but no bigger than a total of 5,000 sq feet of total decking space. (or about 70 by 70)
5) Re-grade Warpath and Lower Centennial/Magic Carpet area
    - Re grade the side hill out of Warpath
    - Re grade the lower part of Centennial so as to add a more constant pitch.
    - Re rrade the existing Magic Carpet run so that it is more consistently pitched.
    - The amount of grade to be done is to be determined.
6) Construct secondary parking bridge to main lot
    - Construction of a bridge over the Creek connecting the parking lots
    - Bridge would, preferably, be stout enough to accommodate a snowcat so that we can keep it groomed and clear during the snowy winter months.

7) New snowmaking
    - Adding snowmaking lines and power (in one trench) on the Sundance Pod on Arapahoe and Middle Drifter, as well as on Rawhide and Calamity on the "front side" of the Mountain. See attached Mapping for locations. Individual pedestal locations TBD.
        - The line on Sundance will be on Arapahoe and will be approximately 4,300 feet long running down the skier's right-hand side of the run. Pedestals will be places such that both runs can be serviced via a single installation.
        - The line down Middle and Lower Drifter will be approximately 4,700 feet long.
        - The line down Rawhide would be approximately 2,800 feet
        - The line down Calamity would be approximately 1,000 feet
        - All lines are drawn to tie into logical spots for drainage purposes and supply purposes and are using existing infrastructure.
    - This is an expansion of about 14.2 Acres
    - We include stabilizing the snowmaking water intake pond to ensure a stable supply of water into the system.
    - Our Snowmaking assumptions are as follows:
        - See attached study for loss rates
        - It takes 180,000 gallons of water to make an Acre foot of manmade snow
        - The proposed additional acreage is 14.4 Acres
        - The additional water use to cover everything in a foot (which is adequate) is approximately 2.55 million gallons of water
        - Assuming a loss rate (on the high end for a fan gun from attached study) of 15% that means a loss to Evaporation and Sublimation of appx 383,000 gallons.
        - Much of this is dependent on other environmental factors such as topography etc., so this is a very loose estimate.

8) Second parking lot in the Carbon Power and Light corridor
    - Construction of a second parking lot is proposed to utilize the cleared area but may extend into the forest due to resource and topography restraints. Additional tree removal would be limited to 1.5 acres.
9) Hazard tree removal throughout the permit area
    - Dead, dying, or downed trees within 1.5 tree lengths of ski area facilities (including but not limited to buildings, roads, ski trails, lifts, utilities) may be cut and either bucked or removed.

No Action Alternative

Operations at Snowy Range Ski area would remain in current state. Previously approved projects may still move forward, but no new infrastructure or ground disturbing activities described in the proposed action would be constructed or implemented.

Section II – Rare Plant Pre-Field Screening and Field Survey

The following analysis includes threatened, endangered, and proposed plant species that were determined to have suitable habitat in the Snowy Range Ski Area analysis area of the Medicine Bow - Routt National Forest or are located downstream of the project and could potentially be affected. A pre-field review was conducted of available information to assemble occurrence records, describe habitat needs and ecological requirements, and it was determined that field reconnaissance was needed to complete the analysis. Sources of information included Region 2 Forest Service records and files, the Wyoming Natural Diversity Database, NatureServe, U.S. Fish and Wildlife Service information, and the best available science in the form of published peer-reviewed research.

Field Reconnaissance

Field surveys were conducted during appropriate detection windows for all rare plant species in the lists below by Forest Service botanists and botanical field technicians. No federally listed threatened, endangered or proposed species were expected; none have suitable habitat in the project area and none were found during field surveys. One threatened plant, Western prairie fringed orchid (*Platanthera praeclara),* is located in the Platte River Valley, downstream of the project area. This threatened plant can be adversely affected by depletions (greater than *de minimus*, or > 0.1 acre feet) to the contributing watershed, which includes the North Fork of the Laramie River. Several Regional Forester sensitive species (RFSS) have suitable habitat in the project area (wetlands). Extensive field surveys did not detect any RFSS in the wetlands or other areas within the proposed project footprints or the larger ski resort area. Surveys were conducted during June and July of 2019 and have a moderate to high level of confidence. However, some areas of the large wetland at the base of the resort remain inaccessible due to deep and moving water. One plant species concern, arrowleaf sweet coltsfoot (*Petasites frigidus var. sagittatus),* is known to occur in this large wetland at the base, this species is discussed further in Section V.

Species Analyzed: R2 RFSS and TEP lists for Plants

- R2 RFSS List Date: ☒12/2018 (most recent R2 FSM 2670); ☐ Other Date
- Date TEP list acquired from IPaC: 7/11/2019

Table 1. Species that are not analyzed further

Listed and Proposed Plant Species
The following listed or proposed plant species or designated critical habitats are neither **known or expected to occur** in the project area, nor expected to be directly or indirectly affected by the project. As a result, **no effect** is expected to these listed or proposed species and effects to them **are not analyzed further**: All plant species ☐ All plant species except those listed below and analyzed in Section II ☒
The following listed or proposed plant species or designated critical habitat is known or expected to occur or may be affected by the project and are analyzed further. **Proceed to Section III with these species**. List species here: *Platanthera praeclara*/Western prairie fringed orchid
Regional Forester's Sensitive Plant Species
The following sensitive plant species are neither **known or expected to occur** in the project area, nor expected to be directly or indirectly affected by the project. As a result, **no impact** is expected to these sensitive species and impacts to them **are not analyzed further:** All plant species ☐ All plant species except those listed below and analyzed in Section II ☒
The following sensitive plant species are known or expected to occur in the project area or may be affected by the project and are analyzed further. **Proceed to Section III with these species**. List species here: *Salix candida*/sageleaf willow *Salix serissima*/Autumn willow *Utricularia minor*/lesser bladderwort

Section III – Analysis and Determination of Effect

Analysis for Western prairie fringed orchid (*Platanthera praeclara)*

Since no RFSS were found during field surveys in the project area, there is not expected to be any direct, indirect or cumulative impacts to known populations of *S. candida, S. serissima,* or *U. minor.* Direct impacts to unoccupied wetland habitats are expected to occur during regrading of Lower Centennial and the Magic Carpet area, which includes a wetland. The operation of heavy equipment in this area, soil re-contouring, as well as the need to drain or fill wetlands for regrading is expected to decrease habitat quality and quantity. This will add to cumulative effects on these wetlands from magic carpet replacement in late 2019 and previous construction such as installation of the chair lift at the base of these wetlands and the ongoing use of two-tracks by motorized vehicles in and around the wetlands. However, it is unknown at this time if these wetlands represent suitable habitat for rare species since they have already been modified by human activities. The large wetland at the base of the resort may also be indirectly impacted by new water withdraw for snowmaking, adding cumulatively to ongoing water withdraw for this same use, though this is only during limited winter months and is unlikely to affect dormant wetland vegetation.

Table 2. Identification of habitat and analysis of impacts

Listed and Proposed Plant Species carried forward from Section I		
For each plant species carried forward from Section I, briefly identify and describe all occupied and unoccupied habitat as it relates to recovery and summarize how the proposed action may directly, indirectly, or cumulatively affect the species or their occupied habitat, or unoccupied habitat required for recovery		
Species	Habitat description	Summary of potential effects from proposed action on species or habitat
Platanthera praeclara	Low riparian areas along the Platte River Valley in Nebraska	Water depletions from the larger Platte River watershed (includes the North Fork of the Laramie River) can adversely impact downstream populations of this species because it is dependent on seasonal timing and quantity of water flow in occupied habitat.
Regional Forester's Sensitive Plant Species carried forward from Section I		
For each species carried forward from Section, briefly identify and describe all occupied and unoccupied habitat as it relates to maintaining viability on the unit or preventing a trend towards listing and summarize how the proposed action may directly, indirectly, or cumulatively impact the species or their occupied habitat		
Species	Habitat description	Summary of potential impacts from proposed action on species or habitat

S. candida, *S. serissima,* and *U. minor*	All three species are found in wetlands associated with ground water discharge sites with organic soils (such as near the magic carpet) and/or water ponds or pools such as the wide, ponded riparian area next to the ski lodge and downstream of much of the project activities. *S. candida and U. minor* are both found in wetlands less than one air mile from the site. *S. serissima* has not been found on the Snowy Range to date, but is found on Pole Mountain at similar elevations and similar habitats (Fertig 2000a, b, Decker 2006b, a, Neid 2006) .	No known populations of RFSS will be impacted by this project. Unoccupied wetland habitats are likely to be impacted by heavy machinery used to regrade wetland slopes. This machinery may compact or rut wet soils, even with the use of erosion matting. Wetland vegetation may be crushed or buried. Surface water tables may be altered locally, which could result in wetland plant mortality. The construction process may also drain wetlands which would decrease wetland extent and alter water tables. Loss of wetland extent or quality would contribute cumulatively to the loss of wetland habitats in the ski area and across the forest, however it is uncertain if this wetlands constitute suitable habitat for RFSS species due to previous modifications on the site.

Table 3. Determination of effect

Listed and Proposed Plant Species carried forward from Section I		
The effects of the proposed action are:	Species	Rationale
No effect	*Platanthera praeclara*	?
May affect, not likely to adversely affect	*Platanthera praeclara*	?
May affect, likely to adversely affect		
Regional Forester's Sensitive Plant Species carried forward from Section I		
The impacts of the proposed action are:	Species	Rationale
No impact		
Beneficial impact (net beneficial)		
May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing	*S. candida, S. serissima, U. minor*	None of these species are known to occur in the project area, however direct, indirect and cumulative impacts are expected to suitable wetland habitats around the new and existing

		magic carpet, the beginner slope regrading, and in the large wetland at the base of the resort.
Likely to result in a loss of viability in the Planning Area, or in a trend toward federal listing		

Section IV – Recommendations for dealing with adverse effects

Recommendations of options to reduce negative effects/impacts of the project aimed at helping achieve, maintain, or restore project eligibility for CE.

Table 4. Recommendations for removing, avoiding, or compensating for any adverse effects and notes for particular species

Species	Recommendation / notes
Wetland habitats	• Operate in heavy machinery in and adjacent to wetlands as little as possible and as late in the season when soils are most dry. • Use appropriate ground protection mats under heavy machinery to minimize adverse impacts to wet soils. • Avoid draining and filling wetlands. • Avoid development or new construction that will adversely impact wetlands or reduce wetland extent. • Avoid soil regrading or moving equipment across the spring located to east (skiers' right) of the existing magic carpet, avoid regrading wetland areas. • Conduct activities over frozen ground and >4 inches of snow whenever possible.

Section V – Other Rare Plant Species

There is one plant species of concern known from the project area - arrowleaf sweet coltsfoot (*Petasites frigidus var. sagittatus),* classified as vulnerable (S3) in the state of Wyoming (NatureServe 2019) . There is a large population of this species in the wetland at the base of the ski resort. The majority of the populations is inaccessible from normal foot or vehicle traffic because it is in an area that is continually saturated and does not freeze in the winter. This protects it from most direct human disturbances, however the wetland water tables may indirectly impacted (lowered) by additional water withdraw for snowmaking. Since the snowmaking and water withdraw is only during limited winter months, it is unlikely to affect dormant wetland vegetation including arrowleaf sweet coltsfoot. No effects to this population are expected from the proposed activities.

Section VI – References

Decker, K. 2006a. Salix candida Flueggé ex Wild. (sageleaf willow): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/salixcandida.pdf.

Decker, K. 2006b. Salix serissima (Bailey) Fern. (autumn willow): A Technical Conservation Assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/salixserissima.pdf.

Fertig, W. 2000a. State Species Abstract: S*alix candida* hoary willow-Family: Salicaceae Wyoming Natural Diversity Database, Laramie, WY.

Fertig, W. 2000b. State Species Abstract: *Utricularia minor.* lesser bladderwort-Family: Lentibulariaceae. Wyoming Natural Diversity Database, Laramie, WY.

NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1 NatureServe, Arlington, Virginia. Available: http://www.natureserve.org/explorer.

Neid, S. L. 2006. Utricularia minor L. (lesser bladderwort): A Technical Conservation Assessment. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206905.pdf.